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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,898	02/26/2004	Cornelius G. Hunter	922_002	4547
25191	7590	08/30/2006	EXAMINER	
Burr & Brown PO BOX 7068 SYRACUSE, NY 13261-7068			NEGIN, RUSSELL SCOTT	
			ART UNIT	PAPER NUMBER
			1631	

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/788,898	Applicant(s) HUNTER, CORNELIUS G.	
	Examiner Russell S. Negin	Art Unit 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 49 and 53 is/are pending in the application.
- 4a) Of the above claim(s) 1-48 and 50-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 49 and 53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group III (claims 49 and 53) in the reply filed on 26 June 2006 is acknowledged. The traversal is on the ground(s) that there would not be undue burden to search all groups. This is not found persuasive because the divergent subject matter of the groups results in undue burden. The three groups are on patentably distinct subjects (amino acid analysis vs. protein fold analysis vs. reading frame analysis, respectively) and would require undue burden for a search of the claimed subject matter in its entirety.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-48 and 50-52 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Groups, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 26 June 2006.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 49 and 53 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Upon consideration of the recent Official Gazette notice of November 22, 2005, entitled, "Interim Guidelines for examination of patent applications for patent subject

matter eligibility," (www.uspto.gov/web/offices/com/sol/og/2005/week47/patgupa.htm), the decision of the Office is to enact 35 U.S.C. 101 rejections on the claims examined.

In regards to claims 49 and 53, the instant claims are drawn to a computer algorithm. A computer algorithm is non-statutory unless the claims include a step of physical transformation, or if the claims include a useful, tangible and concrete result. It is important to note, that the claims themselves must include a physical transformation step or a useful, tangible and concrete result in order for the claimed invention to be statutory. It is not sufficient that a physical transformation step or a useful, tangible, and concrete result be asserted in the specification for the claims to be statutory. In the instant claims, there is no step of physical transformation, thus the Examiner must determine if the instant claims include a useful, tangible, and concrete result.

In determining if the instant claims are useful, tangible, and concrete, the Examiner must determine each standard individually. For a claim to be "useful," the claim must produce a result that is specific, substantial, and credible. For a claim to be "tangible," the claim must set forth a practical application of the invention that produces a real-world result. For a claim to be "concrete," the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. Furthermore, the claim must recite a useful, tangible, and concrete result in the claim itself, and the claim must be limited only to statutory embodiments. Thus, if the claim is broader than the statutory embodiments of the claim, the Examiner must reject the claim as non-statutory.

Claims 49 and 53 do not produce a tangible result. A tangible result requires that the claim must set forth a practical application to produce a real-world result. This rejection could be overcome by amendment of the claims to recite that a result of the method is outputted to a display or a memory or another computer on a network, or by including a physical transformation.

As stated in the Official Gazette notice, "The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a Sec. 101 judicial exception, in that the process claim must set forth a practical application of that Sec. 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had "no substantial practical application."). "[A]n application of a law of nature or mathematical formula to a . . . process may well be deserving of patent protection." Diehr, 450 U.S. at 187, 209 USPQ at 8 (emphasis added); see also Corning, 56 U.S. (15 How.) at 268, 14 L.Ed. 683 ("It is for the discovery or invention of some practical method or means of producing a beneficial result or effect, that a patent is granted . . ."). In other words, the opposite meaning of "tangible" is "abstract.""

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 49 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamtekar et al. [Science, volume 262, 1993, pages 1680-1685] in view of Taylor [Nucleic Acids Research, 1986, volume 14, pages 437-441].

Claim 49 states:

49. A computer program product stored on a computer readable media for identifying a coding region of a nucleotide sequence, the program product comprising: (a) code for translating all possible reading frames of a nucleotide sequence into theoretical protein sequences; (b) code for designating each amino acid within the theoretical protein sequences with a symbol, wherein an amino acid is designated a first symbol if it is a member of a first predetermined set of amino acids, and a second symbol different from the first symbol if the amino acid is not a member of the predetermined set, thereby producing a collection of sequences of symbols; (c) code for determining the number of significant signals in each reading frame of the nucleotide sequence; and (d) code for determining an expected number of significant signals in each reading frame of the nucleotide sequence.

53. A system for identifying a coding region of a nucleotide sequence comprising: (a) a memory; (b) a system bus; (c) a processor operatively disposed to: (i) translate all possible reading frames of a nucleotide sequence into theoretical protein sequences; (ii) designate each amino acid within the theoretical protein sequences with a symbol, wherein an amino acid is designated a first symbol if it is a member of a first predetermined set of amino acids, and a second symbol different from the first symbol if the amino acid is not a member of the predetermined set, thereby producing a collection of sequences of symbols; (iii) determine the number of significant signals in each reading frame of the nucleotide sequence; and (iv) determine an expected number of significant signals in each reading frame of the nucleotide sequence.

The paper of Kamtekar et al, entitled, "Protein design by binary patterning of polar and nonpolar amino acids," denotes nonpolar amino acids in Figure 1B as black circles for nonpolar amino acids (Phe, Leu, Ile, Met, or Val) and white circles for polar amino acids (Glu, Asp, Lys, Asn, Gln, or His). The peptides are generated from

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translations of nucleic acids. The purpose of separation and distinction of polar and non-polar peptides in Kamtekar et al is better efficiency in production of helix bundles.

However, Kamtekar et al does not teach computational translation of the reading frames of Kamtekar et al into proteins.

The article of Taylor, entitled, "A computer program for translating DNA sequences into protein," states in its abstract, "This paper describes a comprehensive program for translating one or two DNA sequences into amino acid sequences." Taylor continues in the introduction on page 437, "Various programs have been described in the literature for protein translation... One of these... was adapted, with a number of corrections and enhancements, for our PDP 11/44 departmental computer and has served several years in routine use." Figure 2 on page 439 illustrates the output of such a program.

It would have been obvious to someone of ordinary skill in the art to modify Kamtekar et al in view of Taylor to result in the instantly claimed invention because while Kamtekar translated nucleotides into amino acids and classified the amino acid polarity for use in helix bundles, Taylor has the advantage of computationally deriving proteins from nucleotide sequences which are capable of use in Kamtekar et al.

Conclusion

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the central PTO Fax Center. The faxing of such pages must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61

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(November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)).
The Central PTO Fax Center Number is (571) 273-8300.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Negin, Ph.D., whose telephone number is (571) 272-1083. The examiner can normally be reached on Monday-Friday from 7am to 4pm.

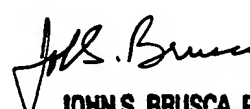
If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Andrew Wang, Supervisory Patent Examiner, can be reached at (571) 272-0811.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instrument Examiner, Yolanda Chadwick, whose telephone number is (571) 272-0514.

Information regarding the status of the application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information on the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

-RSN August 28, 2006

 8/28/06

 28 August 2006
JOHN S. BRUSCA, PH.D
PRIMARY EXAMINER